<u>REMARKS</u>

In response to the foregoing amendments and following remarks, reconsideration and allowance is requested.

Claims 8-15, 37-44, 66-73, and 88-90 were pending at the time of this action, with claims 8-10, 12-14, 37-39, 41-43, 66-68, and 70-72 being independent. Claims 1-7, 16-36, 45-65, and 74-87 are canceled. Claims 8-10, 12-15, 37-39, 41-43, 66-73, and 88-90 are currently amended. Claims 91-100 have been added, with claim 97 being independent. Claims 8-15, 37-44, 66-73, and 88-100 are currently pending, with claims 8-10, 12-14, 37-39, 41-43, 66-68, 70-72, and 97 being independent. No new matter has been added.

Claims 8-15, 37-44, 66-73, and 88-90 stand rejected under 35 U.S.C. 102(b) as allegedly being anticipated by Naimpally et al. (5,294,974).

Response to the Office Action mailed February 16, 2006 and Examiner's Answer Mailed Aug. 8, 2007

35 U.S.C. 102 - Claims 8-15, 37-44, 66-73

1.) **Naimpally does not disclose all of the features of the claims.**

For a claim to be anticipated by the prior art, it is necessary that a single prior art reference disclose each element of the claim under consideration. *Minnesota Mining and Mfg. Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 1565 (Fed. Cir. 1992).

Naimpally does not disclose features recited in Claims 8-10, 12-14, 37-39, 41-43, 66-68, and 70-72. Claims 8-10, 37-39, 66-68 require **(a) "the second QP value is directly derived from the first QP value,"** (b) where "the second QP value for said first macroblock is lower than the first QP value so that said at least one of the U and V color channels has finer quantization resolution than the Y luminance channel for said first macroblock," and **(c)** where the first QP value is for the Y luminance channel and the second QP value is for at least one of the U and V color channels in the macroblock (emphasis added and supported on pages 13-15, paragraphs 39-42 of specification). Instead, Naimpally teaches that the second QP values **are a function of other types of relationships**, and are not directly derived from the first QP value as recited in Claims 8-10, 12-14, 37-39, 41-43, 66-68, and 70-72. Naimpally does not disclose

this feature. For example, Naimpally teaches the following types of relationships.

Naimpally discloses two conditions to vary the QP values of the luminance and/or chrominance blocks. **Neither of Naimpally's conditions directly derive a QP value from another QP value as recited in the claims.**

In a first condition, if Naimpally does not detect chrominance blocks of near-red pixel values, then Naimpally discloses using the default prior art system of Fig. 1 where **the quantization step size remains the same for both the luminance and chrominance blocks** (Naimpally: Fig. 1, Col. 5, lines 13-24 describe the problems with the quantization of Fig. 1). Since the same quantization step size is used for the luminance and chrominance blocks of pixel values, then above-recited feature of "the second QP value for said first macroblock is lower than the first QP value" is not disclosed for the prior art (Fig. 1) condition.

In a second condition, **Naimpally looks to other things besides the first QP value** to adjust quantization for the luminance and/or chrominance blocks. For example, Naimpally discloses that the QP values of the chrominance blocks ((B-Y), (R-Y)) of pixel values are **dependent upon a function of detecting a red or near-red color in the pixel values that is saturated or nearly saturated in a macroblock** (herein "near-

red color") (Naimpally: Col. 1, lines 5-12; Col. 2, lines 16-
25; Col. 5, lines 47-50; Col. 6, lines 58-68; Col. 7, lines 1-
6). So if a near-red color is detected in the chrominance
blocks by Naimpally's circuitry (Fig. 2, 6), then Naimpally
discloses adjusting the QP values of the chrominance blocks so
that finer quantization steps are used for the chrominance
blocks. Therefore, these QP values are not directly derived
from another QP value as claimed. Rather they are based on
the color of pixel values (e.g., the "near red-color").

In the description of the second condition, Naimpally
states that Fig. 2 is a block diagram of a video encoding
system and is the prior art video encoding system Fig. 1 with
new circuit blocks added for the color average circuit 208,
the color detector circuit 210, and the quantization modifier
circuit 212 (Naimpally: Col. 2, lines 31-35, 59-60; Col. 5,
lines 29-35). Naimpally discloses that the QP values are a
function of an average of the (B-Y) and (R-Y) sample or pixel
values in a macroblock (Naimpally: Col. 5, lines 65-68; Fig.
6; Tables 1-3 show relationships using average chrominance
blocks; Fig. 6 shows average input chrominance blocks from
color average circuit 208 as inputs to the ROM 210). The
color average circuit 208 receives a signal from a block
converter 110, averages the sixty-four pixel values in each of
the (B-Y) and (R-Y) blocks in the macroblock, and those two

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average values are sent to the color detector 210 (Naimpally: Col. 5, lines 30-62). Fig. 6 shows an exemplary color detector circuit 210 (Naimpally: Col. 5, lines 63-68, Col. 6, lines 1-28). Naimpally states that the color detector circuitry 210 is for detecting chrominance blocks of near-red color pixel values (Naimpally: Col. 5: lines 35-46; Figs. 5, 6).

Naimpally discloses that the color detector circuit 210 then conditions the modifier 212 to adjust the quantization step size for the near-red blocks of pixels for (B-Y) and (R-Y) (Naimpally: Col. 5, lines 35-68; also see pages 11-12 of the Appeal Brief). In particular, if the color detector circuitry 210 detects chrominance blocks of pixel values in that color and saturation range, then the modifier circuit 212 and the quantizer-control circuitry 122 changes the quantization step size of those chrominance blocks "using finer quantization steps than would normally be used" (Naimpally: Col. 5, lines 42-47).

The rejection also specifically refers to Col. 6, lines 28-36 of Naimpally, which discloses that the quantization resolution of both the luminance and chrominance blocks of pixels are increased as a function of detecting a saturated near-red color in a macroblock (Naimpally: Col. 6, lines 28-34). Increasing the quantization resolution reduces the QP

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value. Naimpally also discloses that the QP values for the chrominance blocks alone are modified in response to the detection of a saturated near-red color in a macroblock (Naimpally: Col. 6, lines 34-36). Therefore, regardless of whether the QP values of both the chrominance and luminance blocks of pixels are changed together or the QP values of the chrominance blocks of pixels are changed alone, Naimpally discloses that changes to the QP values of the chrominance blocks of pixels are a function of detecting a red or near-red color that is saturated or nearly saturated in a macroblock.

Naimpally further discloses that the QP values are dependent upon a quantization divider (quantizer circuitry 122) to multiply QP values "by factors ranging from one-quarter to two in steps of one-quarter," where the factors for multiplication depend upon the average QP values and the color and saturation (Naimpally: Col. 6, lines 25-28; Col. 7, lines 22-60; and Tables 1-3 show the "quantization divider" multiplication factors and corresponding functions for AVG (B-Y) and AVG (R-Y)). As discussed above, the quantization divider is one of at a number of multiple, dependent functions and relationships disclosed in Naimpally from where the QP values are derived.

Hence, Naimpally discloses that (1) the QP values of the chrominance blocks of pixel values are **dependent upon a**

function of color and saturation, (2) the chrominance blocks of pixel values are adjusted for finer quantization steps for the near-red color pixel values, (3) the QP values are a function of an average of the (B-Y) and (R-Y) sample or pixel values, and (4) the QP values are further based on multiplication factors that are a function of color and saturation. Moreover, none of these include the first QP value. Simply, Naimpally fails to disclose the claimed feature of "the second QP value is directly derived from the first QP value."

Therefore, there is a factual deficiency in the 02/16/2006 Office Action for several reasons, and the rejection under 35 U.S.C. 102(b) to Claims 8-10, 12-14, 37-39, 41-43, 66-68, and 70-72 should be reversed.

2) **Naimpally is silent about disclosing the selection of achieving higher compression as recited in Claims 12-14, 41-43, 70-72.**

Naimpally treats high-quality compression the same as low-quality compression.

Pages 3 and 4 of the Examiner's Answer alleges that Naimpally discloses features of the claims in regards to "selecting ... achieving higher compression" in col. 7, lines 61-col. 8, lines 5, and Tables 1-3 of Naimpally. However, Naimpally fails to

disclose or properly suggest these recited features of the claims.

For example, Claims 12-14, 41-43, 70-72 include language to recite the following features (emphasis added).

> **selecting at least one of reducing chroma noise** during compression of a color video image and **achieving higher compression** during compression of the color video image;
> in response to selecting reducing chroma noise, … and
> in response to selecting achieving higher compression, …

Naimpally does not allow for the different treatment of cases where the QP values are small from those cases where the QP values are large. Naimpally treats high-quality compression the same as low-quality compression, regardless of the multiplication factor for the QP values (Naimpally: Col. 6, lines 25-28; Tables 1-3). However, the subject matter of claims 12-14, 41-43, and 70-72 allows high-quality compression to be treated differently from low-quality compression and recites techniques for different treatment via the direct derivation or the relationship between the first and second quantization values (see e.g., the "selecting" language recited in Claims 12, 13, 14, 41, 42, 43, 70, 71, and 72). Hence, this is another patentable distinction over Naimpally.

Moreover, contrary to the assertion in the Examiner's Answer, pages 14-16 of the Appeal Brief relate to claimed subject matter

and provide additional reasons why Claims 12-14, 41-43, 70-72 are patentable over Naimpally. Thus, Claims 8-10, 12-14, 37-39, 41-43, 66-68, and 70-72 are patentable over Naimpally for at least the foregoing reasons.

Claims 88-90

Claims 88-90 are patentable for at least depending upon an allowable base claim (e.g., base Claims 8 or 12 for Claim 88; base Claims 37 or 41 for Claim 89; and base Claims 66 or 70 for Claim 90), as well as for reciting patentable subject matter in their on right. The 02/16/2006 Office Action alleges that Naimpally discloses a look up table, and therefore, dependent Claims 88-90 are anticipated. As discussed above with respect to Figs. 2 and 6, Naimpally fails to disclose directly deriving one QP value from another, as recited in the base claims, and therefore cannot define such a direct derivation in a lookup table. Instead, **Naimpally discloses in Tables 1-3 that the quantization step size is dependent upon and functions of (1) color and saturation, (2) an average of the (B-Y) and (R-Y) sample or pixel values in a macroblock, and (3) a quantization division factor** (Naimpally: Col. 6, lines 25-28, 37-44; Col. 7, lines 9-12, 23-25; see "AVG (B-Y)," "AVG (R-Y)," "Quantization divider" in Tables 1-3). Tables 1-3 show programs for the ROM 210 located at the input of the color detector circuit 210 of

Fig. 6 that controls quantization based on color and saturation and an average of the input chrominance blocks of pixel values. Naimpally discloses in Tables 1-3 that the quantization step size ("Quantization divider") is dependent upon "red or near-red macroblocks" (Table 1), "near red signals which include some blue" (Table 2), "cyan and near-cyan objects and ... red and near red objects" (Table 3) (Naimpally: Col. 7, lines 61-68; Col. 8, lines 1-5).

Therefore, Naimpally does not directly derive the second QP value from the first QP value via accessing a lookup tale comprising a plurality of QP values. Therefore, Claims 88-90 are patentable over Naimpally.

New Claims 91-96

Claims 91-96 recite features that includes "wherein the direct derivation is independent of pixel values for any of the color channels or the luminance channel." No new matter has been added.

As discussed above, Naimpally fails to disclose or teach directly deriving one QP value from another as recited in the base claims. Further, even if Naimpally disclosed or taught a direct derivation for the sake of argument, which it does not, Naimpally does not describe or suggest that the "the **direct**

**derivation is independent of pixel values for any of the color
channels or the luminance channel"** (emphasis added).

In Naimpally, the second QP value is not derived independently
of pixel values for any of the color channels or the luminance
channel. As discussed above, Naimpally discloses that (1) the
QP values of the chrominance blocks of pixel values depend on a
function of color and saturation, and (2) the chrominance blocks
of pixel values are adjusted for finer quantization steps for
the near-red color pixel values. Page 13 of the Appeal Brief,
for example, has a discussion that describes how the QP values
of Naimpally further depend on (1) an average of the chroma
pixel values and (2) a quantization divider. Hence, the QP
values of Naimpally are a function of several relationships, and
Naimpally does not disclose or teach QP values where "the direct
derivation is independent of pixel values for any of the color
channels or the luminance channel." Hence, Claims 91-96 are not
anticipated or rendered obvious by Naimpally. Applicant asks
that claims 91-96 be allowed.

   New Claim 97

Naimpally does not describe or suggest that the "second QP
value is derived independently of pixel values for any of the
color channels or the luminance channel," as recited in claim
97.

As discussed above, the QP values of Naimpally are not derived independently of pixel values for any of the color channel or the luminance channel. Therefore, Naimpally does not describe or suggest that a second QP value is derived independently of pixel values for any of the color channels or luminance channels. As such, Naimpally does not anticipate or render obvious independent claim 97, and the claims that depend from it.

New claims 98-100

Newly-added claims 98-100 are patentable at least for depending on an allowable base claim, claim 97. Claims 98-100 are also patentable for reciting allowable subject matter in their own right. No new matter has been added.

Conclusion

It is believed that all of the pending issues have been addressed. However, the absence of a reply to a specific rejection, objection, issue, or comment, including the Examiner's characterizations of the art, does not signify agreement with or concession of that rejection, issue, or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment or cancellation of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment or cancellation.

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Respectfully submitted,

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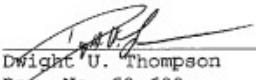
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